

In the Claims

1-16. (cancelled)

17. (new) A device for measuring capacitance, comprising:

a support;

an electrode arrangement formed of a plurality of electrodes located one of next to one another and in succession on said support;

actual measurement means for measuring capacitance between a first one of said electrodes as a measurement electrode and a second one of said electrodes as a counterelectrode; and

a controllable switching means for connecting said electrodes as said first and second ones of said electrodes to said measurement means, for switching in a definable manner and for being controlled by said switching means, each of said electrodes being switchable in alternation as said measurement electrode and another one of said electrodes being switchable as said counterelectrode to a definable reference potential, all of said electrodes which are not switched as the measurement electrode are switched as the counterelectrode to the reference potential.

18. (new) A device according to claim 17 wherein

the definable reference potential is a ground potential of said measurement means.

19. (new) A device according to claim 17 wherein

all of said electrodes have essentially identical contours and surface areas.

20. (new) A device according to claim 17 wherein  
each of said electrodes is spaced essentially equally distant from an adjoining one of said  
electrodes.

21. (new) A device according to claim 17 wherein  
said electrodes that are not directly adjacent to one another are interconnected by wiring  
into respective electrode groups; and  
said switching means controls one of said electrode groups for switching in alternation as  
the measurement electrode and the other electrode groups as the counterelectrode to the reference  
potential.

22. (new) A device according to claim 17 wherein  
said electrodes, along with printed conductors, are applied to said support in thin film  
technology.

23. (new) A device according to claim 17 wherein  
said electrodes, along with printed conductors, are applied to said support in thick film  
technology.

24. (new) A device according to claim 17 wherein  
said support comprises connecting means for connection of at least one of other sensors  
and said switching means.

25. (new) A device according to claim 17 wherein  
said switching means and said measurement means are integrated in a microprocessor.

26. (new) A device according to claim 25 wherein  
said microprocessor comprises a downstream evaluator.

27. (new) A process for measuring capacitance, comprising the steps of:  
arranging a plurality of electrodes located one of next to one another and in succession on  
a support;  
measuring capacitance between a first one of said electrodes as a measurement electrode  
and a second one of said electrodes as a counterelectrode with actual measurement means;  
connecting said electrodes as the first and second ones of said electrodes to the  
measurement means by a controllable switching means; and  
operating and controlling said switching means in a definable manner such that each of  
the electrodes is switched in alternation as the measurement electrode and another one of said  
electrodes as the counterelectrode to a definable reference potential and such that all of said  
electrodes not switched as the measurement electrodes are switched as the counterelectrode to the  
reference potential.

28. (new) A process according to claim 27 wherein  
the switching means is controlled by a microprocessor according to a stored program.

29. (new) A device for determining a level of a liquid in a container, comprising:

a support;

an electrode arrangement formed of a plurality of electrodes located one of next to one another and in succession on said support;

actual measurement means for measuring capacitance between a first one of said electrodes as a measurement electrode and a second one of said electrodes as a counterelectrode;

a controllable switching means for connecting said electrodes as said first and second ones of said electrodes to said measurement means, for switching in a definable manner and for being controlled by said switching means, each of said electrodes being switchable in alternation as said measurement electrode and another one of said electrodes being switchable as said counterelectrode to a definable reference potential, all of said electrodes which are not switched as the measurement electrode are switched as the counterelectrode to the reference potential; and

an evaluation means, downstream of said actual measurement means, for determining the level from capacitance measured by comparison to stored reference values.

30. (new) A device according to claim 29 wherein

at least one of the liquid and walls of the container are at a reference potential.

31. (new) A device according to claim 17 wherein

said electrodes that are not directly adjacent to one another are interconnected by wiring into respective electrode groups; and

said switching means controls one of said electrode groups for switching in alternation as the measurement electrode and the other electrode groups as the counterelectrode to the reference potential.

32. (new) A device according to claim 31 wherein  
    said electrode groups are interconnected with respect to a number of electrodes in the respective groups and with respect to relative positions of said electrodes combined in one of said groups relative to an arrangement of all of said electrodes; and  
    whereby assignment of measured capacitance values determines the level unambiguously.

33. (new) A device according to claim 28 wherein  
    said electrodes are located on an inner side of a tube immersible into the liquid.

34. (new) A device according to claim 33 wherein  
    said tube has a side facing the liquid with a coating at least partially over a surface area thereof.

35. (new) A device according to claim 33 wherein  
    said tube has a side facing the liquid with a coating over an entire surface area thereof.